What is claimed is:

1.   An electric wiring simulation device simulating characteristics of an electric wiring while the electric wiring is short-circuited, comprising:

a characteristics information data base for storing parts information on parts and wirings constituting a test object circuit, discharge characteristics of a power supply, current-prearcing time characteristics of protecting parts and current-smoke time characteristics of the wirings;

an assigned path searching unit for searching an assigned path between a short-circuit point and the power supply when the short-circuit point on the test object circuit is assigned;

a current value calculating unit for calculating a resistance value on the assigned path searched by the assigned path searching unit, and calculating a short-circuit current value based on the resistance value and the discharge characteristics of the power supply; and

a judging unit for judging whether each protecting part on the test object circuit is fused and whether each wiring of the assigned path smokes based on the short-circuit current value calculated by the current value calculating unit, the current-smoke time characteristics and the current-prearcing time characteristics, at unit time intervals.

2.   An electric wiring simulation device according to claim 1,

wherein the current value calculating unit takes account of the resistance value during heat emission based on a change in the resistance values with respect to time, the resistance values included in the parts information.

3.   A recording medium recording a simulation program for an electric wiring simulation device simulating characteristics of an electric wiring while the electric wiring is short-circuited, the recording medium comprising:

a storage processing for storing parts information on parts and wirings constituting a test object circuit inputted as a simulation object, discharge characteristics of a power supply, current-prearcing time characteristics of protecting parts and current-smoking time characteristics of the wirings, in a data base;

an assigned path searching processing for searching an assigned path between a

12

short-circuit point and the power supply when the short-circuit point is assigned on the test object circuit;

a current value calculating processing for calculating a resistance value on the assigned path searched in the assigned path searching processing, and for calculating a short-circuit current value based on the resistance value and the discharge characteristics of the power supply; and

a judging processing for judging whether each protecting part on the assigned path is fused and whether each wiring on the assigned path smokes based on the short-circuit current value calculated in the current value calculating processing, the current-smoke time characteristics and the current-prearcing time characteristics, at unit time intervals.

4. A recording medium recording a simulation program for an electric wiring simulation device simulating characteristics of an electric wiring according to claim 3,

wherein the current value calculating processing is conducted while taking account of the resistance value during heat emission based on a change in the resistance values with respect to time, the resistance values included in the parts information.

5. A simulation program for an electric wiring simulation device simulating characteristics of an electric wiring while the electric wiring is short-circuited, the simulation program comprising:

a storage code segment for storing parts information on parts and wirings constituting a test object circuit inputted as a simulation object, discharge characteristics of a power supply, current-prearcing time characteristics of protecting parts and current-smoking time characteristics of the wirings, in a data base;

an assigned path searching code segment for searching an assigned path between a short-circuit point and the power supply when the short-circuit point is assigned on the test object circuit;

a current value calculating code segment for calculating a resistance value on the assigned path searched in the assigned path searching code segment, and for calculating a short-circuit current value based on the resistance value and the discharge characteristics of the power supply; and

13

a judging code segment for judging whether each protecting part on the assigned path is fused and whether each wiring on the assigned path smokes based on the short-circuit current value calculated in the current value calculating code segment, the current-smoke time characteristics and the current-prearcing time characteristics, at unit time intervals.

6.   A simulation program for an electric wiring simulation device simulating characteristics of an electric wiring while the electric wiring is short-circuited according to claim 5,

wherein the current value calculating code segment is conducted while taking account of the resistance value during heat emission based on a change in the resistance values with respect to time, the resistance values included in the parts information.

14